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February 2025

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  30 minutes. Learn about the communication barriers patients may encounter, and ways to ensure they get the most from their care.
  Next sessions: 4th March @ 12 noon, 2nd April @ 1pm & 15th May @ 2pm

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1. **Effect of acute kidney injury care bundle on kidney outcomes in cardiac patients receiving critical care: a systematic review and meta-analysis.**

Authors: Ahmed, Fatma Refaat;Al-Yateem, Nabeel;Nejadghaderi, Seyed Aria;Gamil, Rawia and AbuRuz, Mohannad Eid

Publication Date: Jan 10 ,2025

Journal: BMC Nephrology 26(1), pp. 17

Abstract: BACKGROUND: Cardiac surgery is a major contributor to acute kidney injury (AKI); approximately 22% of patients who undergo cardiac surgery develop AKI, and among them, 2% will require renal replacement therapy (RRT). AKI is also associated with heightened risks of mortality and morbidity, longer intensive care stays, and increased treatment costs. Due to the challenges of treating AKI, prevention through the use of care bundles is suggested as an effective approach. This review aimed to assess the impact of care bundles on kidney outcomes, mortality, and hospital stay for cardiac patients in critical care. METHODS: PubMed, Scopus, Web of Science, and EMBASE were searched up to November 2024. Inclusion criteria were studies on individuals with cardiac diseases receiving critical care, that used AKI care bundle as the intervention, and reported outcomes related to AKI, mortality, and other kidney-related events. We used the Cochrane Collaboration's risk of bias tool 2 and the Newcastle-Ottawa scale for quality assessment. Pooled odds ratios (ORs) or risk ratios (RRs) with 95% confidence intervals (CIs) were calculated. RESULTS: Seven studies on total 5045 subjects, including five observational and two randomized controlled trials (RCTs) were included. The implementation of care bundles significantly reduced the incidence of all-stage AKI (OR: 0.78; 95%CI: 0.61-0.99) and moderate-severe AKI (OR: 0.56; 95%CI: 0.43-0.72). Also, the implementation of care bundle increased the incidence of persistent renal dysfunction after 30 days by 2.39 times. However, there were no significant changes in RRT, major adverse kidney events, or mortality between the groups. The mean quality assessment score for observational studies was 7.2 out of ten, while there were noted concerns in the risk of bias assessment of the RCTs. CONCLUSIONS: The application of care bundles in patients, including those undergoing cardiac surgeries as well as non-cardiac critical illness, appears to be effective in reducing AKI, particularly in moderate and severe stages. However, given the inclusion of non-cardiac patients in some studies, the observed effect may not be solely attributable to cardiac surgery cases. Future large-scale RCTs focusing specifically on cardiac surgery patients are recommended to clarify the impact of care bundles within this subgroup. REGISTRATION ID IN PROSPERO: CRD42024498972. Copyright © 2025. The Author(s)

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2. **Outcomes of patients with infective endocarditis-associated acute kidney injury: a**

retrospective cohort study.

Authors: Ai S.;Feng X.;Sun K.;Chen G.;Liu X.;Miao Q.;Qin Y. and Li, X.

Publication Date: 2025

Journal: Clinical Kidney Journal 18(1) (pagination), pp. Article Number: sfae382. Date of Publication: 01 Jan 2025

Abstract: Background. The outcomes of patients with infective endocarditis (IE)-associated acute kidney injury (AKI) are poorly understood. Methods. This retrospective cohort study was conducted in a tertiary hospital in China to analyze the short- and long-term outcomes among patients with IE-associated AKI. The risk factors for 90-day mortality, long-term outcomes and kidney non-recovery were analyzed via multivariable logistic regression, the Cox regression, and the Fine-Gray competing risk model, respectively. Results. Among 294 patients with IE-associated AKI, 14.3% died within 90 days, and the risk factors for 90-day mortality were similar to those identified in the general IE population. Among the 230 AKI survivors in whom 90-day kidney recovery could be assessed, 17.4% did not recover kidney function at 90 days. Kidney non-recovery at 90 days was associated with an increased risk of the long-term composite outcome of mortality, end-stage renal disease or sustained doubling of serum creatinine [hazard ratio (HR) 3.00, 95% confidence interval (CI) 1.19-7.59]. Five variables were related to kidney non-recovery: low baseline estimated glomerular filtration rate (eGFR) (HR 2.52, 95% CI 1.73-3.65), stage of AKI (HR 3.03, 95% CI 2.07-4.42 for stage 3), shock (HR 5.56, 95% CI 3.02-10.22), glomerulonephritis-related AKI (HR 3.04, 95% CI 1.93-4.77) and drug-related AKI (HR 2.77, 95% CI 1.86-4.13). Conclusion. Patients with IE-associated AKI had a high 90-day mortality, and a substantial proportion of survivors did not recover kidney function at 90 days. Kidney non-recovery at 90 days was associated with adverse long-term outcomes. Low baseline eGFR, severe AKI, shock, drug-related AKI and glomerulonephritis-related AKI were risk factors for kidney non-recovery.

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3. **Evaluating the risk of acute kidney injury and mortality associated with concomitant use of vancomycin with piperacillin/tazobactam or meropenem in critically ill and non-critically ill patients: a systematic review and meta-analysis.**

Authors: Alshehri, Abdulmajeed M.;Al Yami, Majed S.;Aldairem, Atheer;Alfehaid, Lama;Almutairi, Abdulaali R.;Almohammed, Omar A. and Badawoud, Amal Mohammad

Publication Date: Jan 07 ,2025

Journal: BMC Infectious Diseases 25(1), pp. 36

Abstract: BACKGROUND: There are conflicting findings regarding the risk of acute kidney injury (AKI) and mortality with vancomycin/piperacillin-tazobactam combination (VPT) and vancomycin/meropenem (VM). The aim of this meta-analysis was to compare the risk of AKI and mortality between VPT and VM. METHODS: Observational studies reporting the incidence of AKI and mortality in patients receiving VPT or VM between January 2017 and September 2024 were retrieved from PubMed, the Cochrane Library, and Web of Science. The primary outcome of the analysis was the risk of AKI, and the secondary outcomes were the mortality rate, need for renal replacement therapy (RRT), and hospital length of stay (LOS). This meta-analysis was conducted using a random-effects model to estimate the odds ratios (OR) and 95% confidence intervals (CI) for AKI, mortality, and RRT or mean difference and 95% CI for the LOS. RESULTS: Seventeen studies involving a total of 80,595 patients were included in the analysis. The odds of developing AKI were higher among patients who received the VPT versus those who received the VM combination (OR = 2.02; 95%CI 1.56-2.62). There were no differences between VPT and VM in the mortality and hospital length of stay; however, the odds of requiring RRT were higher among VPT group versus VM group (OR = 1.55; 95%CI 1.23-1.96). CONCLUSION: The findings suggest that the use of VPT is associated with a higher risk of AKI compared to VM and highlight the need for cautious antibiotic selection and monitoring of renal function in patients receiving these combinations.

4. **A Study on the Clinical Profile of Patients with Acute Kidney Injury Resulting from Acute Gastroenteritis.**

Authors: Banavathu R.N.;Valluru J.;Rao D.S. and Priyanka, P. T.

Publication Date: 2025

Journal: International Journal of Current Pharmaceutical Review and Research 17(1), pp. 73–77

Abstract: Background: An increasing number of acute gastroenteritis (AGE) cases are now being diagnosed with acute kidney injury (AKI). Recent years have highlighted that even slight increases in serum creatinine across various clinical settings are linked to poorer outcomes. In this study, we aimed to examine the clinical profile of patients with AKI following AGE at our tertiary hospital. Method(s): Patients above 18 years diagnosed with AKI. After the selection of the patient, a detailed history of the case was recorded and the patient was subjected to a thorough clinical examination. Records included information on gastroenteritis duration, onset of renal failure, hydration status at admission, and daily blood tests for urea, serum creatinine, sodium, and potassium levels. Additional tests included CBC, ESR, urine, stool (including hanging drop), HIV, blood glucose, total and differential leukocyte counts, and liver function tests (serum bilirubin, total serum protein, albumin, SGOT, SGPT, ALP). Result(s): Most cases (56.7%) were classified as stage 1 AKI, characterized by mild elevations in serum creatinine or reduced urine output. Stage 2 AKI was observed in 30% of patients, indicated by a more pronounced rise in serum creatinine and persistent oliguria. Only 16.7% of cases progressed to stage 3 AKI, requiring renal replacement therapy or meeting other criteria for severe kidney injury. Conclusion(s): Early identification and intervention can often prevent progression from stage 1 AKI. The KDIGO classification provides a framework to stratify patients by risk of adverse outcomes, guiding tailored management strategies. Close monitoring of stage 2 and 3 AKI patients is essential to detect worsening renal function early and implement timely interventions, such as dialysis.

5. **Prognostic Value of Preoperative Ascending Aortic Diameter on Postoperative Acute Kidney Injury in Adult Cardiac Surgery.**

Authors: Dou D.;Liu Q.;Bie D.;An R.;Yuan S.;Jia Y. and Yan, F.

Publication Date: 2025

Journal: Heart Surgery Forum 28(1), pp. E064–E075

Abstract: Background: Ascending aortic diameter (AAD) is commonly measured during ultrasound examinations in cardiac surgery patients and is critical for assessing their prognosis. AAD affects renal perfusion. However, the impact of AAD on the incidence of postoperative acute kidney injury (AKI) in cardiac surgery patients remains unclear. This study aims to explore the prognostic value of AAD for postoperative AKI in adult cardiac patients. Method(s): This retrospective study included patients aged >=18 years who underwent cardiovascular surgeries from April to July 2023 at Fuwai Hospital, China. Patients were categorized into two groups: the AKI group and the non-AKI group. Preoperative cardiac ultrasound values were collected the day before surgery. The primary endpoint was the incidence of AKI. Univariable and multivariable logistic regression analyses were conducted to identify independent risk factors for postoperative AKI. The receiver operating characteristic curve was utilized to evaluate model performance. The effectiveness of including AAD in the model was also assessed. Result(s): The study comprised 442 patients. Both univariable and multivariable analyses indicated that AAD is an independent predictor of postoperative AKI in both on-pump and off-pump cardiac patients (p Result(s): The study comprised 442 patients. Both univariable and multivariable analyses indicated that AAD is an independent predictor of postoperative AKI in both on-pump and off-pump cardiac patients (p Result(s): The study comprised 442 patients. Both univariable and multivariable analyses indicated that AAD is an independent predictor of postoperative AKI in both on-pump and off-pump cardiac patients (p Conclusion(s): AAD is a significant prognostic factor for postoperative AKI in adult cardiac

surgery. Its prognostic value is particularly pronounced in on-pump patients. Patients with an enlarged AAD are at a higher risk of developing AKI and experiencing adverse outcomes.Copyright: © 2025 The Author(s)

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6. **Severe sepsis-associated acute kidney injury and outcomes: a longitudinal cohort study.**

Authors: Gallop L.;Hickey J.;Johnson R. and Secombe, P.

Publication Date: 2025

Journal: Internal Medicine Journal (pagination), pp. Date of Publication: 2025

Abstract: Background: Sepsis-associated acute kidney injury (SA-AKI) is common among patients admitted to the intensive care unit (ICU) with sepsis. Aim(s): This study aimed to demonstrate an association between an episode of SA-AKI and progression to dialysis dependence, with a view to identifying a cohort who may be suitable for intensive nephrology follow-up. Method(s): Design: Retrospective data-linkage cohort study. Setting(s): Alice Springs Hospital ICU, 10-bed regional facility, housed in a 200-bed regional hospital, located in Central Australia. Participant(s): All patients admitted with a diagnosis code associated with sepsis between 2015 and 2017. Main Outcome Measure(s): Primary outcome was a composite measure comprising death or initiation of maintenance dialysis within 5 years of the index case of sepsis leading to ICU admission. Result(s): The unadjusted risk of the composite outcome was significantly higher in the SA-AKI group (odds ratio (OR) 3.22, 95% confidence interval (CI) 1.81-5.74, P Result(s): The unadjusted risk of the composite outcome was significantly higher in the SA-AKI group (odds ratio (OR) 3.22, 95% confidence interval (CI) 1.81-5.74, P Conclusion(s): These results demonstrate an association between an index episode involving SA-AKI and the composite outcome in a defined population. Identification of this group may allow intensive nephrology follow-up and secondary prevention with the goal of mitigating the risk of progression of disease with significant economic and personal benefits.Copyright © 2025 Royal Australasian College of Physicians

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7. **Effect of Tiered Implementation of Clinical Decision Support System for Acute Kidney Injury and Nephrotoxin Exposure in Cardiac Surgery Patients.**

Authors: Justice C.M.;Nevin C.;Neely R.L.;Dilcher B.;KovacicScherrer N.;CarterTempleton H.;Ostrowski A.;Krafcheck J.;Smith G.;McCarthy P.;Pincavitch J.;KaneGill S.;Freeman R.;Kellum J.A.;KohliSeth R.;Nadkarni G.N.;Shawwa K. and Sakhuja, A.

Publication Date: 2025

Journal: Applied Clinical Informatics 16(1), pp. 1–10

Abstract: BACKGROUND: Nephrotoxin exposure may worsen kidney injury and impair kidney recovery if continued in patients with acute kidney injury (AKI). OBJECTIVE(S): This study aimed to determine if tiered implementation of a clinical decision support system (CDSS) would reduce nephrotoxin use in cardiac surgery patients with AKI. METHOD(S): We assessed patients admitted to the cardiac surgery intensive care unit at a tertiary care center from January 2020 to December 2021, and August 2022 to September 2023. A passive electronic AKI alert was activated in July 2020, followed by an electronic nephrotoxin alert in March 2023. In this alert, active nephrotoxic medication orders resulted in a passive alert, whereas new orders were met with an interruptive alert. Primary outcome was discontinuation of nephrotoxic medications within 30 hours after AKI. Secondary outcomes included AKI-specific clinical actions, determined through modified Delphi process and patient-centered outcomes. We compared all outcomes across five separate eras, divided based on the tiered implementation of these alerts. RESULT(S): A total of 503 patients met inclusion criteria. Of 114 patients who received nephrotoxins before AKI, nephrotoxins were discontinued after AKI in 6 (25%) patients in pre AKI-alert era, 8 (33%) patients in post AKI-alert era, 7 (35%) patients in AKI-alert long-term follow up era, 7 (35%) patients in pre nephrotoxin-alert era, and 14 (54%) patients in post nephrotoxin-alert era ($p = 0.047$ for trend). Among AKI-specific consensus actions, we noted a

decreased use of intravenous fluids, increased documentation of goal mean arterial pressure of 65 mm Hg or higher, and increased use of bedside point of care echocardiogram over time. Among exploratory clinical outcomes we found a decrease in proportion of stage III AKI, need for dialysis, and length of hospital stay over time. CONCLUSION(S): Tiered implementation of CDSS for recognition of AKI and nephrotoxin exposure resulted in a progressive improvement in the discontinuation of nephrotoxins.

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8. **Quantifying the potential contribution of drugs to the occurrence of acute kidney injury in patients with chronic kidney disease.**

Authors: Laville S.M.;Vendar J.;Massy Z.A.;GrasChampel V.;Moragny J.;Frimat L.;Laville M.;Jacquelinet C.;PecoitsFilho R.;De Pinho N.A.;Hamroun A. and Liabeuf, S.

Publication Date: 2025

Journal: Clinical Kidney Journal 18(1) (pagination), pp. Article Number: sfae357. Date of Publication: 01 Jan 2025

Abstract: Background. We sought to comprehensively describe drug-related components associated with acute kidney injury (AKI) in patients with chronic kidney disease (CKD), describing the incidence of drug-related AKI, the proportion of preventable AKI, identified the various drugs potentially associated with it, explored the risk factors, and assessed the 1-year incidences of the recurrence of drug-related AKI, kidney failure, and death. Methods. CKD-REIN is a French national prospective cohort of 3033 nephrology outpatients with a confirmed diagnosis of CKD (eGFR 2). AKIs and adverse drug reactions (ADRs) were prospectively identified from hospital reports, medical records, and patient interviews. Expert nephrologists used the KDIGO criteria to adjudicate all stages of AKI, and expert pharmacologists used validated tools to adjudicate ADRs (including drug-related AKIs). Results. Over a median [interquartile range] period of 4.9 [3.4-5.1] years, 832 cases of AKI were reported in 639 (21%) of the 3033 study participants. The drug-related component associated with AKI accounted for 236 cases, and 28% were judged to be preventable or potentially preventable. The three most frequently implicated drug classes were diuretics, renin-angiotensin system inhibitors, and contrast agents. A history of cardiovascular events, diabetes, lower levels of hemoglobin and eGFR, poor medication adherence, and >=5 drugs taken daily were associated with a greater risk of drug-related AKI. Full recovery was not attained in 64 (27%) of the 236 cases of drug-related AKI. The 1-year cumulative incidences of recurrence of drug-related AKI, kidney replacement therapy, and death were 7%, 15%, and 11%, respectively, after the first drug-related AKI. Conclusions. Drug-related AKI is prevalent among patients with CKD. Even though a substantial proportion of these events were classified as stage 1, our findings point to a poor prognosis.

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9. **Risk factors and outcome of acute kidney injury in critically ill patients with SARS-CoV-2 pneumonia: a multicenter study.**

Authors: Oliva I.;Ferre C.;Daniel X.;Cartanya M.;Villavicencio C.;Salgado M.;Vidaur L.;Papiol E.;de Molina F.G.;Bodi M.;Herrera M. and Rodriguez, A.

Publication Date: 2025

Journal: Medicina Intensiva 49(1), pp. 15–24

Abstract: Objective: To assess incidence, risk factors and impact of acute kidney injury(AKI) within 48 h of intensive care unit(ICU) admission on ICU mortality in patients with SARS-CoV-2 pneumonia. To assess ICU mortality and risk factors for continuous renal replacement therapy (CRRT) in AKI I and II patients. Design(s): Retrospective observational study. Setting(s): Sixty-seven ICU from Spain, Andorra, Ireland. Patient(s): 5399 patients March 2020 to April 2022. Main variables of interest: Demographic variables, comorbidities, laboratory data (worst values) during the first two days of ICU admission to generate a logistic regression model describing independent risk factors for AKI and ICU mortality. AKI was defined according to current international guidelines (kidney disease improving

global outcomes, KDIGO). Result(s): Of 5399 patients included 1879 (34.8%) developed AKI. These patients had higher ICU mortality and AKI was independently associated with a higher ICU mortality (HR 1.32 CI 1.17-1.48; p Result(s): Of 5399 patients included 1879 (34.8%) developed AKI. These patients had higher ICU mortality and AKI was independently associated with a higher ICU mortality (HR 1.32 CI 1.17-1.48; p Result(s): Of 5399 patients included 1879 (34.8%) developed AKI. These patients had higher ICU mortality and AKI was independently associated with a higher ICU mortality (HR 1.32 CI 1.17-1.48; p Conclusion(s): Critically ill patients with SARS-CoV-2 pneumonia and AKI have a high ICU mortality. Even AKI I and II stages are associated with high risk of needing CRRT and ICU mortality.

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10. **Acute kidney injury.**

Authors: Ostermann M.;Lumlertgul N.;Jeong R.;See E.;Joannidis M. and James, M.

Publication Date: 2025

Journal: The Lancet 405(10474), pp. 241–256

Abstract: Acute kidney injury (AKI) is a common, heterogeneous, multifactorial condition, which is part of the overarching syndrome of acute kidney diseases and disorders. This condition's incidence highest in low-income and middle-income countries. In the short term, AKI is associated with increased mortality, an increased risk of complications, extended stays in hospital, and high health-care costs. Long-term complications include chronic kidney disease, kidney failure, cardiovascular morbidity, and an increased risk of death. Several strategies are available to prevent and treat AKI in specific clinical contexts. Otherwise, AKI care is primarily supportive, focused on treatment of the underlying cause, prevention of further injury, management of complications, and short-term renal replacement therapy in case of refractory complications. Evidence confirming that AKI subphenotyping is necessary to identify precision-oriented interventions is growing. Long-term follow-up of individuals recovered from AKI is recommended but the most effective models of care remain unclear.

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11. **Outcomes of Patients with Postoperative Acute Kidney Injury After Acute Type A Aortic Dissection Repair.**

Authors: Samanidis G.;Kolovou K.;Kanakis M.;Katsaridis S. and Perreas, K.

Publication Date: 2025

Journal: Journal of Personalized Medicine 15(1) (pagination), pp. Article Number: 9. Date of Publication: 01 Jan 2025

Abstract: Introduction: Acute type A aortic dissection (ATAAD) repair is associated with high morbidity postoperatively. The aim of this study is to evaluate the incidence and risk factors for acute kidney injury in patients who underwent ATAAD repair. Patients and Methods: Two hundred and twenty-three patients underwent ATAAD repair. Postoperative acute kidney injury (AKI) was evaluated according to the Kidney Disease-Improving Global Outcomes (KDIGO) criteria. Result(s): Postoperative AKI was observed in 140 patients (62.8%). The patients with postoperative AKI classified by KDIGO stages: 1 = 53 (23.8%), 2 = 36 (16.1%), and 3 = 51 (22.9%) patients. Twenty-eight patients (12.6%) underwent replacement renal therapy due to severe renal impairment (KDIGO stage 3). Multivariable logistic regression analysis (adjusted to risk factors) showed that preoperative eGFR was the risk factor for postoperative RRT (odds ratio (OR) = 0.95, 95% CI: 0.92-0.97, p Result(s): Postoperative AKI was observed in 140 patients (62.8%). The patients with postoperative AKI classified by KDIGO stages: 1 = 53 (23.8%), 2 = 36 (16.1%), and 3 = 51 (22.9%) patients. Twenty-eight patients (12.6%) underwent replacement renal therapy due to severe renal impairment (KDIGO stage 3). Multivariable logistic regression analysis (adjusted to risk factors) showed that preoperative eGFR was the risk factor for postoperative RRT (odds ratio (OR) = 0.95, 95% CI: 0.92-0.97, p Result(s): Postoperative AKI was observed in 140 patients (62.8%). The patients with postoperative AKI classified by KDIGO stages: 1 = 53 (23.8%), 2 = 36 (16.1%), and 3 = 51 (22.9%) patients. Twenty-eight patients (12.6%) underwent

replacement renal therapy due to severe renal impairment (KDIGO stage 3). Multivariable logistic regression analysis (adjusted to risk factors) showed that preoperative eGFR was the risk factor for postoperative RRT (odds ratio (OR) = 0.95, 95% CI: 0.92-0.97, p Result(s): Postoperative AKI was observed in 140 patients (62.8%). The patients with postoperative AKI classified by KDIGO stages: 1 = 53 (23.8%), 2 = 36 (16.1%), and 3 = 51 (22.9%) patients. Twenty-eight patients (12.6%) underwent replacement renal therapy due to severe renal impairment (KDIGO stage 3). Multivariable logistic regression analysis (adjusted to risk factors) showed that preoperative eGFR was the risk factor for postoperative RRT (odds ratio (OR) = 0.95, 95% CI: 0.92-0.97, p Conclusion(s): Postoperative AKI was associated with high morbidity and mortality rate in patients after ATAAD repair.Copyright © 2024 by the authors.

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12. **Prevalence of cardiovascular instability during hemodialysis therapy in hospitalized patients: A systematic review and meta-analysis.**

Authors: ArcentalesVera K.;VeraMendoza M.F.;CevallosSalas C.;GarciaAguilera M.F. and FuenmayorGonzalez, L.

Publication Date: 2024

Journal: Science Progress 107(4), pp. 368504241308982

Abstract: BACKGROUND: Intradialytic hypotension (IDH) is a common and serious complication in renal replacement therapy, especially in hospitalized patients. The absence of a standardized definition complicates data synthesis and the development of evidence-based guidelines. Current definitions vary, including different blood pressure thresholds, clinical symptoms, and the need for medical intervention during dialysis. IDH is linked to increased mortality and cardiovascular morbidity and may impede renal recovery in patients with acute kidney injury and chronic kidney disease. METHOD(S): A systematic review was conducted using MEDLINE via PubMed, Embase, and Web of Science to identify studies reporting IDH prevalence. A meta-analysis of proportions was performed to determine the global prevalence of IDH, with subgroup analyses to explore heterogeneity. The Joanna Briggs Institute's checklist was used to assess the risk of bias in prevalence studies. The PRISMA guidelines were followed to report the results of this study, PROSPERO registration number CRD42024500622. RESULT(S): The meta-analysis found a global IDH prevalence of 31% (95% CI 0.18-0.44) across nine studies. Significant heterogeneity was observed (I2: 97.87%; p RESULT(S): The meta-analysis found a global IDH prevalence of 31% (95% CI 0.18-0.44) across nine studies. Significant heterogeneity was observed (I2: 97.87%; p CONCLUSION(S): IDH is a significant complication during hospital-based renal replacement therapy, with a global prevalence of 31%. These findings highlight the need for a standardized, evidence-based definition of IDH to improve diagnostic consistency and clinical outcomes through more accurate diagnosis, better treatment strategies, and tailored patient management.

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13. **Risk Factors for Postoperative Acute Kidney Injury Requiring Renal Replacement Therapy in Patients Undergoing Heart Valve Surgery.**

Authors: Duchnowski P. and Smigielski, W.

Publication Date: 2024

Journal: Journal of Clinical Medicine 13(24) (pagination), pp. Article Number: 7811. Date of Publication: 01 Dec 2024

Abstract: Background: Postoperative acute kidney injury (AKI) in patients undergoing heart valve surgery is a common complication requiring special treatment, including renal replacement therapy (RRT). Effective prevention remains the most effective tool to reduce this important clinical problem. The aim of the study was to evaluate the predictive abilities of selected perioperative parameters in predicting AKI requiring RRT in the early postoperative period in patients undergoing cardiac valve surgery. Method(s): Prospective study on a group of patients undergoing cardiac valve surgery. The

primary endpoint was postoperative AKI requiring RRT. The secondary endpoint was death in the RRT group. Logistic regression analysis was used to assess which variables predicted the primary and secondary endpoints. Result(s): 603 patients were included in the study. The primary endpoint occurred in 43 patients. At multivariable analysis, age (p Result(s): 603 patients were included in the study. The primary endpoint occurred in 43 patients. At multivariable analysis, age (p Result(s): 603 patients were included in the study. The primary endpoint occurred in 43 patients. At multivariable analysis, age (p Result(s): 603 patients were included in the study. The primary endpoint occurred in 43 patients. At multivariable analysis, age (p Conclusion(s): The results of this study indicate that older age, elevated values of preoperative levels of CRP, as well as increasing levels of postoperative troponin T and the need for a prolonged supply of catecholamines, are independent predictors of postoperative AKI requiring RRT as well as death. Accurate identification of patients at increased postoperative risk of AKI could facilitate preoperative patient informed consent and optimize the process of qualification and cardiac surgical treatment.

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14. **Impact of Haemoadsorption Therapy on Short Term Mortality and Vasopressor Dependency in Severe Septic Shock with Acute Kidney Injury: A Retrospective Cohort Study.**

Authors: Epstein D.;Badarni K. and BarLavie, Y.

Publication Date: 2024

Journal: Antibiotics 13(12) (pagination), pp. Article Number: 1233. Date of Publication: 01 Dec 2024

Abstract: Background/Objectives: Sepsis, a life-threatening organ dysfunction caused by a dysregulated host response to infection, remains a major challenge in ICUs. This study evaluated whether combining haemoadsorption therapy with continuous renal replacement therapy (CRRT) reduces ICU and short-term mortality in patients with severe septic shock and acute kidney injury (AKI) requiring CRRT. Method(s): A single-centre retrospective cohort study was conducted at Rambam Health Care Campus, Haifa, Israel, from January 2018 to February 2024. Data were collected from ICU patients with severe septic shock and AKI requiring CRRT. Patients were divided into two groups: those receiving haemoadsorption therapy with CRRT and those receiving CRRT alone. Primary and secondary endpoints included ICU, 30 and 60-day mortality, vasopressor dependency index (VDI), and lactate levels. Result(s): Out of 545 patients with septic shock, 133 developed AKI requiring CRRT, and 76 met the inclusion criteria. The haemoadsorption group (n = 47) showed significant reductions in blood lactate levels and VDI after 24 h compared to the CRRT alone group (n = 29). ICU mortality was significantly lower in the haemoadsorption group (34.0% vs. 65.5%, p = 0.008), as was 30 and 60-day mortality (34.0% vs. 62.1%, p = 0.02, and 48.9% vs. 75.9%, p = 0.002). Multivariate analysis confirmed haemoadsorption therapy as independently associated with lower ICU and 30-day but not 60-day mortality. Conclusion(s): Haemoadsorption therapy combined with CRRT in patients with severe septic shock and AKI requiring CRRT is associated with improved lactate clearance, reduced vasopressor requirements, and lower ICU and 30-day mortality. Further high-quality randomized controlled trials are needed to confirm these findings.

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15. **Preadmission VACS Index as a Predictor of Hospital Acute Kidney Injury in People with HIV.**

Authors: Fisher M.C.;Hanna D.B.;Fazzari M.;Felsen U.R.;Wyatt C.M.;Abramowitz M.K. and Ross, M. J.

Publication Date: 2024

Journal: Journal of Acquired Immune Deficiency Syndromes (1999) (pagination)

Abstract: Background: The Veterans Aging Cohort Study (VACS) Index is a summary measure of routinely obtained clinical variables that predicts numerous health outcomes. Since there are currently no tools to predict acute kidney injury (AKI) in persons with HIV (PWH), we investigated the association of preadmission VACS Index with hospital AKI in PWH. Method(s): We conducted an observational study of PWH hospitalized in a New York City health system between 2010-2019. The VACS Index,

calculated using outpatient laboratory values within 8-365 days of admission, was examined continuously and in quartiles. Multivariable Cox proportional hazards models, adjusting for sociodemographic factors, comorbidities, and ICU admission, determined the association of the VACS Index with AKI. Result(s): Among 1, 186 PWH, median age was 53, 43.5% were women, 86.2% were Hispanic or Black, 23.1% were coinfected with hepatitis C, and 65% were virally suppressed (Result(s): Among 1, 186 PWH, median age was 53, 43.5% were women, 86.2% were Hispanic or Black, 23.1% were coinfected with hepatitis C, and 65% were virally suppressed (Result(s): Among 1, 186 PWH, median age was 53, 43.5% were women, 86.2% were Hispanic or Black, 23.1% were coinfected with hepatitis C, and 65% were virally suppressed (Conclusion(s): Preadmission VACS Index is associated with hospital AKI. Use of the VACS Index may allow for early identification of PWH at risk for AKI and initiation of preventative strategies. These findings should be externally validated in other health systems, including its predictive performance in specific hospital settings.

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16. **Longitudinal trend in post-discharge estimated glomerular filtration rate in intensive care survivors.**

Authors: Glendell R.M.;Puxty K.A.;Shaw M.;Sim M.A.B.;Traynor J.P.;Mark P.B. and Andonovic, M.

Publication Date: 2024

Journal: Journal of the Intensive Care Society (pagination), pp. Date of Publication: 2024

Abstract: Background: Acute kidney injury (AKI) within the intensive care unit (ICU) is common but evidence is limited on longer-term renal outcomes. We aimed to model the trend of kidney function in ICU survivors using estimated glomerular filtration rate (eGFR), comparing those with and without AKI, and investigate potential risk factors associated with eGFR decline. Method(s): This observational cohort study included all patients aged 16 or older admitted to two general adult ICUs in Scotland between 1st July 2015 and 30th June 2018 who survived to 30 days following hospital discharge. Baseline serum creatinine and subsequent values were used to identify patients with AKI and calculate eGFR following hospital discharge. Mixed effects modelling was used to control for repeated measures and to allow inclusion of several exploratory variables. Result(s): 3649 patients were included, with 1252 (34%) experiencing in-ICU AKI. Patients were followed up for up to 2000 days with a median 21 eGFR measurements. eGFR declined at a rate of -1.9 ml/min/1.73m2/year (p-value /year (p-value 2/year compared to a rate of -1.83 ml/min/1.73m2/year in patients who did not experience AKI (p-value 0.007). Pre-existing diabetes or liver disease and in-ICU vasopressor support were associated with accelerated eGFR decline regardless of AKI experience. Conclusion(s): ICU survivors experienced a decline in kidney function beyond that which would be expected regardless of in-ICU AKI. Long-term follow-up is warranted in ICU survivors to monitor kidney function and reduce morbidity and mortality.

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17. **Association between SOFA score and risk of acute kidney injury in patients with diabetic ketoacidosis: an analysis of the MIMIC-IV database.**

Authors: Hua Y.;Ding N.;Jing H.;Xie Y.;Wu H.;Wu Y. and Lan, B.

Publication Date: 2024

Journal: Frontiers in Endocrinology 15(pagination), pp. Article Number: 1462330. Date of Publication: 2024

Abstract: Introduction: The Sequential Organ Failure Assessment (SOFA) score is a widely utilized clinical tool for evaluating the severity of organ failure in critically ill patients and assessing their condition and prognosis in the intensive care unit (ICU). Research has demonstrated that higher SOFA scores are associated with poorer outcomes in these patients. However, the predictive value of the SOFA score for acute kidney injury (AKI), a common complication of diabetic ketoacidosis (DKA), remains uncertain. Therefore, this study aims to investigate the relationship between SOFA scores and

the incidence of AKI in patients with DKA. Method(s): The study population was divided into two groups based on the median SOFA score (Q1: SOFA 3). The primary endpoint was the incidence of AKI in patients with DKA. Secondary endpoints included renal replacement therapy (RRT) utilization and in-hospital mortality. Kaplan-Meier survival analysis, Cox proportional hazards models, and logistic regression models were employed to assess the association between SOFA and therisk of AKI in patients with DKA. Result(s): Overall, 626 patients with DKA were included in this study, of which 335 (53%) were male. Kaplan-Meier survival analysis included that patients with higher SOFA scores experienced significantly increased cumulative incidences of AKI, higher rates of RRT utilization, and elevated in-hospital mortality. Furthermore, after adjusting for confounding factors, logistic regression and Cox proportional hazards analyses confirmed that SOFA scores remained significantly associated with the incidence of AKI in patients with DKA. Conclusion(s): Our study indicates that a high SOFA score is an independent risk predictor for the occurrence of AKI, the utilization of RRT, and in-hospital mortality in patients with DKA. The sofa score can be utilized as a biomarker to assess the risk of AKI in this patient population.

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18. **Acute Kidney Injury Post Hip Fracture Surgery: Local Quality Improvement Project and Review of Literature.**

Authors: Metry, Arsany;Manzoor, Nauman;Elkilany, Ahmed;Wattage, Kanishka;Sain, Arnab;Hussain, Fahad;Khilla, Kerollos;Sohail, Zain and Abdulkarim, Ali

Publication Date: Dec ,2024

Journal: Cureus 16(12), pp. e75594

Abstract: BACKGROUND: The aim of the study is to identify the potential risk factors for postoperative AKI in hip fracture patients. DESIGN AND METHODS: Using our local neck of femur (NOF) registration data, patient details were selected using inclusion and exclusion criteria. Electronic records of patients were assessed retrospectively, including blood results, radiological investigations, clinical documentation, and drug charts. The time period was from the start of January 2022 to the end of June 2022. INCLUSION CRITERIA: All patients > 50 years old with NOF fractures underwent operative management from January 2022 to June 2022. EXCLUSION CRITERIA: 1. Pathological fractures. 2. Non-operative management. 3. Died directly postoperative. RESULTS: Two hundred and fifty patients underwent hip fracture surgery at our hospital in 6 months (January 2022-June 2022) (Cemented procedures were 133 [53%], while fixation procedures were 117 [47%]). Female patients were 174 (70%), and male patients were 76. The average age was 83.4 years, and the number of operations done over the weekend (Friday-Sunday) = 123 (49%). The incidence of postoperative AKI was 56 (22.4%). Forty-five of the fifty-six cases were stage one (80.4%), while seven cases (12.5%) were stage 2. The studied risk factors for postoperative AKI were cemented procedures (61% of postoperative AKI incidence), female gender (66%), time from admission to operation (>24 hours = 33%), day of operation (operations done Friday/Saturday/Sunday = 55%), and postoperative antibiotics (71%). CONCLUSION: We need strategies to reduce the incidence of postoperative AKI, like AKI alert on laboratory results, IV fluid prescription preoperatively since the arrival of patients to the ED, avoiding/stopping nephrotoxic medications on admission, regular review of postoperative renal function tests and fluid balance, especially in high-risk patients, increase nursing staff and junior doctors on wards over weekends, and we need to review our policy of giving postoperative IV antibiotics.

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19. **Epidemiology and outcomes of early versus late septic acute kidney injury in critically ill patients: A retrospective cohort study.**

Authors: Monard C.;Bianchi N.;Kelevina T.;Altarelli M. and Schneider, A.

Publication Date: 2024

Journal: Anaesthesia Critical Care and Pain Medicine 43(1) (pagination), pp. Article Number: 101332. Date of Publication: 01 Feb 2024

Abstract: Background: It was recently proposed to distinguish early from late sepsis-associated acute kidney injury (SA-AKI). We aimed to determine the relative frequency of these entities in critically ill patients and to describe their characteristics and outcomes. Method(s): We included in this retrospective cohort study all adult patients admitted for sepsis in a tertiary ICU between 2010 and 2020. We excluded those on chronic dialysis or without consent. We extracted serum creatinine, hourly urinary output, and clinical and socio-demographic data from medical records until day 7 or ICU discharge. AKI presence and characteristics were assessed daily using KDIGO criteria. We compared patients with early (occurring within 2 days of admission) or late (occurring between day 2 and day 7) SA-AKI. We conducted sensitivity analyses using different definitions for early/late SA-AKI. Result(s): Among 1835 patients, 1660 (90%) fulfilled SA-AKI criteria. Of those, 1610 (97%) had early SA-AKI, and 50 (3%) had late SA-AKI. Similar proportions were observed when only considering AKI with elevated sCr (71% vs. 3%), severe AKI (67% vs. 6%), or different time windows for early SA-AKI. Compared with early SA-AKI patients, those with late SA-AKI were younger (median age [IQR] 59 [49-70] vs. 69 [58-76] years, p Result(s): Among 1835 patients, 1660 (90%) fulfilled SA-AKI criteria. Of those, 1610 (97%) had early SA-AKI, and 50 (3%) had late SA-AKI. Similar proportions were observed when only considering AKI with elevated sCr (71% vs. 3%), severe AKI (67% vs. 6%), or different time windows for early SA-AKI. Compared with early SA-AKI patients, those with late SA-AKI were younger (median age [IQR] 59 [49-70] vs. 69 [58-76] years, p Result(s): Among 1835 patients, 1660 (90%) fulfilled SA-AKI criteria. Of those, 1610 (97%) had early SA-AKI, and 50 (3%) had late SA-AKI. Similar proportions were observed when only considering AKI with elevated sCr (71% vs. 3%), severe AKI (67% vs. 6%), or different time windows for early SA-AKI. Compared with early SA-AKI patients, those with late SA-AKI were younger (median age [IQR] 59 [49-70] vs. 69 [58-76] years, p Result(s): Among 1835 patients, 1660 (90%) fulfilled SA-AKI criteria. Of those, 1610 (97%) had early SA-AKI, and 50 (3%) had late SA-AKI. Similar proportions were observed when only considering AKI with elevated sCr (71% vs. 3%), severe AKI (67% vs. 6%), or different time windows for early SA-AKI. Compared with early SA-AKI patients, those with late SA-AKI were younger (median age [IQR] 59 [49-70] vs. 69 [58-76] years, p Conclusion(s): AKI is almost ubiquitous in septic critically ill patients and present within two days of admission. The timing from ICU admission might not be relevant to distinguish different phenotypes of SA-AKI. Ethics approval: Ethics Committee Vaud, Lausanne, Switzerland (ndegree2017-00008).Copyright © 2023 The Author(s)

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20. **Acute kidney injury in patients with cirrhosis: Acute Disease Quality Initiative (ADQI) and International Club of Ascites (ICA) joint multidisciplinary consensus meeting.**

Authors: Nadim M.K.;Kellum J.A.;Forni L.;Francoz C.;Asrani S.K.;Ostermann M.;Allegretti A.S.;Neyra J.A.;Olson J.C.;Piano S.;VanWagner L.B.;Verna E.C.;AkcanArikan A.;Angeli P.;Belcher J.M.;Biggins S.W.;Deep A.;GarciaTsao G.;Genyk Y.S.;Gines P., et al

Publication Date: 2024

Journal: Journal of Hepatology 81(1), pp. 163–183

Abstract: Patients with cirrhosis are prone to developing acute kidney injury (AKI), a complication associated with a markedly increased in-hospital morbidity and mortality, along with a risk of progression to chronic kidney disease. Whereas patients with cirrhosis are at increased risk of developing any phenotype of AKI, hepatorenal syndrome (HRS), a specific form of AKI (HRS-AKI) in patients with advanced cirrhosis and ascites, carries an especially high mortality risk. Early recognition of HRS-AKI is crucial since administration of splanchnic vasoconstrictors may reverse the AKI and serve as a bridge to liver transplantation, the only curative option. In 2023, a joint meeting of the International Club of Ascites (ICA) and the Acute Disease Quality Initiative (ADQI) was convened to develop new diagnostic criteria for HRS-AKI, to provide graded recommendations for the work-up, management and post-discharge follow-up of patients with cirrhosis and AKI, and to highlight priorities for further research.Copyright © 2024 The Author(s)

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21. **Etiology, Risk Factors, Clinical Course and Outcome of Acute Kidney Injury in Geriatric Patients.**

Authors: Vinusha M.;Sahithi P.V.L.;Uma M.A.;Dhananjaya P.E.;Kundavaram S.R. and Raghavendra, K. V. S.

Publication Date: 2024

Journal: Research Journal of Medical Sciences 18(11), pp. 44–50

Abstract: Acute Kidney Injury (AKI), formerly known as acute renal failure, is a sudden and often reversible decline in kidney function, characterized by an abrupt increase in serum creatinine levels or a decrease in urine output. The study's objectives are to examine the causes, risk factors and consequences of Acute Kidney Injury (AKI) in the older population. The study conducted was an Observational cross-sectional study in the Department of General Medicine, PES College, Kuppam from October 2022 to October 2023. The sample size was 50. The data was collected using a pretested questionnaire which contains sociodemographic data, presenting complaints, clinical examination and investigation details (CBC, RFT, Serum electrolytes, Urine analysis, USG abdomen and pelvis). Data was entered in Excel and Imported to SPSS for further analysis. Out of a total of 50 individuals, 32 (64%) were male, while 18 (36%) were female. There was a higher percentage of males (64%) compared to females (36%). The lactate levels, procalcitonin were higher among the death group than compared to the patients who were discharged. Inotrope and ventilatory support requirement was more in patients whose outcome was death. This difference was statistically significant (p-value

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22. **Adverse effects of nonsteroidal anti-inflammatory drugs in critically ill patients: A scoping review.**

Authors: Martin J.R.;Yu M. and Erstad, B. L.

Publication Date: 2023

Journal: American Journal of Health-System Pharmacy 80(6), pp. 348–358

Abstract: Purpose: Nonsteroidal anti-inflammatory drugs (NSAIDs) are often recommended as opioid-sparing agents. The objective of this scoping review was to conduct a thorough search of the current literature to determine whether in adult critically ill patients there is an association between exposure to NSAIDs vs no NSAIDs and the subsequent development of serious adverse events, particularly gastrointestinal bleeding and acute kidney injury (AKI). Method(s): The Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Reviews was utilized as a guideline for reporting. Searches were performed in PubMed (National Library of Medicine), Cochrane Library (Wiley), EMBASE (Elsevier), Stat!Ref (Teton), and Access Pharmacy (McGraw Hill) for articles published from January 2016 to August 2022. Result(s): Of the 3,062 citations and titles identified in the search, 2,737 titles remained after removal of duplicates, 2,588 were excluded at title and abstract screening, and 149 articles remained for full-text review. None of the studies involved heterogeneous groups of critically ill patients in nonspecialty intensive care unit settings. Most studies evaluated were conducted in the perioperative setting and had limited adverse events reporting, particularly with respect to serious NSAID-related adverse effects of concern in critically ill patients. Conclusion(s): In published studies primarily involving perioperative patients, there is insufficient detail concerning the definitions and reporting of NSAID-related serious adverse events such as bleeding and AKI. These events are of particular concern in heterogeneous critically ill patient populations predisposed to such complications. In most (if not all) critically ill patients, sustained dosing of NSAIDs should be avoided regardless of COX-1 selectivity due to the paucity of safety data.

Sources Used:

The following databases are used in the creation of this bulletin: EMBASE and Medline.

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